Activity: Green School - The School of the Future

Objectives

Students will:

1) identify environmental features and behaviors in a Green School;
2) compare their school to the Green School;
3 use the Green Schools audit to determine their school's performance.

Wisconsin Model Academic Standards

Science Content Standards:

G) Science Applications

H) Science in Social and Personal Perspectives

Social Studies Content Standards:

A) Geography: People, Places, and Environments

D) Economics: Production, Distribution, Exchange, and Consumption

Environmental Education Content Standards:

A) Questioning and Analysis

B) Knowledge of Environmental Processes and Systems

C) Environmental Issue Investigation Skills

D) Decisions and Action Skills

E) Personal and Civic Responsibility

Part A

Method

Students will use the "Green School" poster to identify environmentally appropriate school features and student/staff behaviors. They will then conduct the "Green School" audits to compare their school to the Green School.

Background

Wisconsin is home to over 3100 private and public schools. The fictional school in the poster is a model school that displays both environmental features and environmental behaviors that will make the school more sustainable. The features, behaviors, curriculum, and the connections between the school and the community are an excellent model for other communities. How is your school?

Below are some examples of schools that feature Green School characteristics. These schools have designed and implemented various programs that make them sustainable over the long term. ❖

Examples:

Green Schools Program - School Grounds

Jackson Environmental Discovery Center, Stevens Point WI

Imagine a prairie teeming with insects and birds, a squishy wetland providing homes for mallards and other waterfowl, and a garden fluttering with butterflies. This may sound like a description of a state park or scenic area, unless of course you're a teacher at the Jackson Environmental Discovery Center (JEDC) in Stevens Point, Wisconsin. If so, then the above describes the twenty-one acre school site available for investigation by you and your students.

Since January of 2003, when the JEDC officially became an environmentally based charter school, the students, faculty and community partners at this elementary school have been creating and developing the JEDC school site. Originally intended to provide examples of the major biomes of Wisconsin, today the grounds include a one-acre prairie, deciduous forest, wetland and butterfly garden. Each grade level at the JEDC has been involved in the creation and development of the site.

For the kindergarten through second graders, planting the butterfly garden has been their major focus. Having already covered insects in science, putting in a garden seemed like a natural connection to existing curricula. In late May, the students were involved in a morning of planting as well as the creation of cement garden stones, which will border the plot and serve as a walking path for exploration. Other grade levels are studying birds and prairies.

The students and staff at the JEDC plan on continuing to develop and enhance their site in the coming months, providing strong curricular ties and bringing the outdoors "in" to their environmental charter school.

Green Schools Program - Mercury

Waukesha South High School, Waukesha WI

Mercury is a hazardous material that causes serious environmental and human health problems related to the brain, spinal cord, kidneys and the liver. Children are more sensitive to mercury poisoning than adults.

How did the oldest high school in Waukesha County become mercury free? After discovering some surprises, coordinating services, and finding some resources the adventure was started.

Over the many years, the science lab and storage room of Waukesha South High school had collected a stockpile of mercury products. Sound familiar? Science teacher Jane Schneider and Waukesha County Recycling and Solid Waste Intern Dan Lezama started the adventure by conducting an inventory of the school and discovered some interesting mercury stockpiles. In some old PVC pipes used for storage more than 100 broken mercury lab thermometers were found. Covered in dust on a top shelf, a clay jug with a cork stopper was found to be storing about 15 pounds of elemental mercury.

Materials:

- laminated Green School posters
- washable markers
- Green Schools Audit

Levels:

Grades 4-10

Subjects:

Science, Social Studies

Skills:

Analyzing, comparing similarities and differences, describing, discussing, reporting, and observing

Other findings included 40 unbroken mercury thermometers, two open ended 3-foot barometers, and several more vials of mercury. The mercury posed a definite liability and risk to the school.

School District Science Coordinator, Tom Katte, provided replacement alcohol thermometers and Waukesha County provided pick-up and recycling of the mercury and equipment at no charge to the school. Through the efforts of these people, Waukesha South is now virtually mercury free.

Green Schools Program - Energy

School District of Janesville, Janesville WI

The School District of Janesville took an aggressive path to energy reduction. In 2000, the District hired an energy specialist, Jerry Tinberg. They implemented an energy-tracking program and then developed a three-pronged approach to energy reduction and savings.

- Staff and Student Behavioral Improvements. All staff and students received energy conservation training. The program focused on lights and computers. Monthly energy reports are generated for each school.
- Electrical/Mechanical Improvements. This involved changing lighting, HVAC and energy controls. The goals included payback for the changes and improving the classroom learning environment. One project involved the replacement of approximately 500 incandescent exit light fixtures.
- Transportation Natural Gas Purchases. The District carefully monitored natural gas markets and locked in pricing that would save the district natural gas costs.

Results: During the first year they saved one million kilowatt-hours or about 7 percent. The actual dollar savings were approximately $65,000. The second year they added another savings of 3 percent. The goal of the District is to save 15-20 percent from the 2000-2001 school year figures.

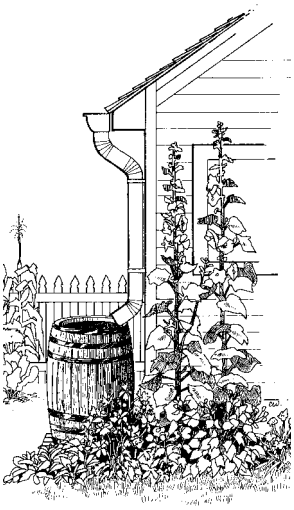
These are just three examples of how schools in Wisconsin are saving resources and dollars, and improving education of our students. Disclaimer: All schools are in unique situations and therefore benefits will be different for each school. Possible side effects will also vary. They may include the following: greater student involvement and leadership, saving resources and dollars, higher test scores, greater community involvement, a fun learning environment, greater school spirit and morale, less liability and dangers to students and staff, and others.

Visit the Green School Web site for further information on the Green Schools program at http://www.dnr.state.wi.us/org/caer/ce/greenschools/. ❖

Duration:

Part A - 60 minutes

Procedure:



1. Ask the students the series of questions below:

   Do they recycle at home? If yes, what?

   Does the school recycle? If yes, what?

   Where does the water come from that they use in the school?

   Is the water tested for contaminants? Where does the water that they use at home come from? Where does it go?

   Does the school have any energy saving devices that are used?

   How did the students get to school today?

   Should the school try to save resources by reducing waste or changing behaviors?

2. Divide the class into teams of 3 students. Hand out the laminated copies of the Green School poster and have the students find the physical features of the school and the school grounds that display good environmental characteristics. Use the following as an example:

Physical Feature	Purpose or Function	Type of Savings
School Grounds - Rain Garden	Collects runoff from the roof to provide water for plants and reduces runoff	Reduces runoff from site, provides pleasant environment and study area, saves watering

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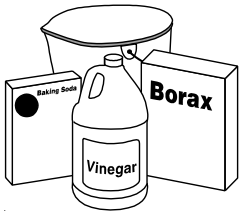
3. Teams should now look for student/staff behaviors that display good environmental stewardship. Use the following as an example:

Behavior	Purpose or Goal	Type of Savings
Book, DVD, CD Loan Area	Reduce the amount of materials purchased	Saves materials and costs

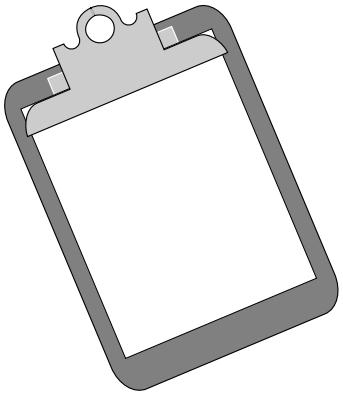
4. There are several doors that are just labeled with a name. Have the teams list the products they might find in those rooms. Remember that this is a Green School. Use the following as an example:

Room	Material	Purpose	Benefit
Janitorial Supplies	Floor Cleaner	Clean Floor	Non - Chlorine cleaner
Nurses Office			
Restroom			

5. The back of the poster lists a variety of features and behaviors. Some of these could not be shown visually in the poster. Have the students discuss the features and behaviors and add them to their charts above.
6. The students should discuss which of the physical features they have at their school. Which features could they add? How would they go about making the changes?
7. Then discuss the behaviors shown in the poster. Which could they implement in their school? How would they go about making the changes?



Part B



1. Conduct Green Schools audit for the following;
   - ✔ Water
   - ✔ Solid Waste
   - ✔ Energy
   - ✔ Mercury
   - ✔ Chemicals
   - ✔ Community
   - ✔ Transportation
   - ✔ School Grounds
   - ✔ Integrated Pest Management
   - ✔ Indoor Air Quality

   The audit can be found at: http://www.dnr.state.wi.us/org/caer/ce/greenschools/
2. Compare your school to the Green School in the poster. In what ways are you similar? In what ways might you be able to improve?

Enrichment:

1. Have students select one room and have them do a detailed drawing showing the features they discovered and have them add additional Green School features to the room.
2. Submit a description to the Green School Web site of an environmental project your students have completed at the school or in the community. The site is available for other schools to visit. ❖